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III.

SOME ECONOMIC ASPECTS OF THE AMERICAN FOOD SUPPLY.

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(*Read April 20, 1918.*)

We are at last planning for a long war. Munitions that cannot be ready until the spring of 1920 have been ordered. The food supply and its control by government also need to be put on a permanent, a scientific, and a reorganized basis.

The United States has great food possibilities as follows:

1. We have enormous resources of unused land in villages, towns, suburbs, cities, and on farms and in land yet unreclaimed.
2. We have enormous resources of labor now represented by leisure, by sport, and by industries which are dispensable if winning the war is our prime object. These industries might therefore divert labor to food production if we should become convinced that an emergency exists.
3. We have an enormously strong position in that at present our agriculture has an animal base, namely, that most of the proceeds of the American farms and fields go to feed beasts. Much of it can be diverted to men if the need arises.

We should not take too much comfort from these descriptions of food resources. They may have the same significance for an army, hungry to-day, that our twenty million young or youngish men have for an army hard pressed to-day. Both require months or years to become effective. The food resources call for energy and intelligence if they meet the need. Unfortunately, the process of putting energy and intelligence into the food question must face the troubles that arise from democracy. In America everybody can howl. Every man and some women can vote, every interest can lobby and hire advertising. It can also have friends if not tools in authority. These

forces that sway government arise from a citizenship of whom the great mass are economic illiterates. This is unfortunate, for government is becoming more and more the application of economics, especially in war time, and we as yet have very inefficient reasons of determining whether those placed in supreme authority have economic knowledge.

Our chief task with regard to food is to save ourselves from our beasts; namely, to shift agriculture from the production of food for animals over to the production of food for men. Agriculture, like the other industries, responding to the law of supply and demand, had slowly adjusted itself to a condition of world trade which, as we well know, has been suddenly destroyed in such a way as to throw upon us greatly increased demands for both bread and meat, but especially for bread. This means that we must either increase our total production or shift our production from one class of goods to another. It is very doubtful if we can hope for a total increase in agricultural products, in consideration of the fact that hundreds of thousands of people have recently left farm labor for the more attractive prices of munition plants and other city opportunities, and other hundreds of thousands are going off to the army.

Therefore, we must reduce something. What shall be reduced? Since the main products of American farms may be classified ultimately as fruits and vegetables, bread stuffs, dairy products, meats, and fibers, we must look over the list carefully and see where we can shorten up. Examination of the facts will show that there is but one place. We must have fibers for clothing. We must continue to have bread, more of it rather than less, much more indeed. We must continue to have fruits and vegetables, more of them rather than less. We should not attempt to reduce dairy products. It is upon meat and meat alone that we have the possibility of shrinking. The beasts, the blessed beasts, by their deaths, can save us. Their bodies, if used for food, fill our plates once. The grain they would have eaten had they lived will fill our plates several times over.

It is difficult to overestimate the importance of the fact that American agriculture has an animal base. In China, Japan, and parts of India, animals are only one-twentieth part as numerous in proportion to population as they are here. There man raises food

by hand labor and eats it himself. If he misses a crop, there is famine, which in those regions has killed more people in the last hundred years than even this terrible war has killed. In this country we raise a crop, feed most of it to the beasts. If we have a shortage, we kill a few of the beasts and eat them and a part of their food. Fortunately our animals are in the habit of eating largely of food that we can eat, in which respect our agriculture differs greatly from the agriculture of certain other peoples. For example, the Arab of the desert has a great wealth of beasts, but his camels, goats, sheep, and donkeys eat grass, coarse herbs, and bushes which he cannot eat; whereas, our animals are grain eaters to the extent of three to four billions of bushels a year. Therefore our problem is greatly simplified by this precious element of elasticity.

When we start out to shorten our animal supply we cannot do it, however, in an indiscriminate way. The horses and mules we must have to maintain production and keep the army going. We must have the cows for dairy products. We must have the sheep for wool and also mutton. We must keep the hens for their invaluable eggs. There remain but two classes under consideration for the possible shrinkage; namely, swine and beef cattle. As between these two we have the fact that swine are much more efficient in that they return 29.9 per cent. of the production value of the food eaten, while the steer returns but 14.8 per cent.¹ Therefore it is plain that the simplest place to gain bread at the expense of meat is to reduce our holdings of beef cattle not only for the reason of their inefficiency as meat producers when the food they have consumed is considered, but also because the food eaten by beef cattle can be taken over by the more valuable animals, especially in this particular emergency; namely, the cow, the horse, the mule, the sheep, and even the goat.

It is a misfortune of society that attempts to change any industry

¹ Eckles and Warren, "Dairy Farming," p. 8.

On the basis of the grain eaten by these animals—"It may be roughly estimated that about 24 per cent. of the energy of grain is recovered for human consumption in pork, about 18 per cent. in milk and only about 3.5 per cent. in beef and mutton. In other words, the farmer who feeds bread grains to his stock is burning up 75 to 97 per cent. of them in order to produce for us a small residue of roast pig (he should have said meat) and so is diminishing the total stock of human food."—"Roast Pig," *Science*, 1917, XLVI., 160.

whatsoever are bound to affect some citizen's profits. The most fervid oration I have heard since the war began was a cattle dealer decrying meatless days, and so far as I know Uncle Sam has done nothing to shift the emphasis of meat production except to exhort, and some of his exhortations have been strictly pro-German. Many efforts, unofficial and perhaps even official, have been directed toward the positively inefficient line of trying to increase beef cattle instead of urging that the male calf should be hustled off to the shambles as quickly as possible to make room for his betters.

Specifically the food tasks of the government, aside from rationing, have been and will be chiefly three: (1) to increase production of meats and fats and to reduce their consumption; (2) to conserve the supplies on hand, particularly bread stuffs; (3) to increase production of bread stuffs and substitutes. In this work the administration during the first year has had to face very great difficulties—for the first months an entire lack of formal organization and the absence of adequate legislation. In Congress and out, the friends of Germany, the friends of the profiteer, the foes of change, and those still asleep have fought the rationalizing of our food administration and have tried to baffle and hamstring it with meager powers. Throughout its career the Food Administration has had to combat pro-Germanism of some people, a lack of patriotism of others, an universal love of what we are used to eating, our ignorance of the real situation and our continued action under the feeling that the war was still 3,000 miles away, and finally the difficulties of trade readjustment and industrial readjustment where changes have been attempted.

There is every reason to believe that in the future the government will have a different intellectual background because of a stirring, a conviction that is resulting from the terrible battles now in progress, and from the fact that we are actually at least participating in the war itself, though even yet to a very small extent.

What changes in food matters do we need as we become increasingly resolved to apply ourselves and our resources to the war?

I. *Increasing the Supply and Reducing the Consumption of Meats and Fats.*—The government's general policy of letting meat prices alone is excellent. Excellent also is its policy of standardizing

profits of packing companies and checking their profiteering. The meat supply has thus had the high price stimulus to production and the high price check to consumption. Excellent also, probably, was the first compulsory increase of agricultural production: namely, the prohibition of the sale of hens until the first of May (later amended to April 20), although with the high prices of grain it has probably resulted in losses to a number of poultry keepers, and they may not get caught in that trap again.

The widespread campaign conducted by many newspapers last year about not killing the calf has, as above mentioned, been a positive injury to the country, in so far as it has resulted in the production of the least efficient of our meat producers. "Kill the bull calf and buy a sow," would have been a far wiser motto. Instead of urging the production of beef cattle, there should be as a war measure an annual tax of \$10 or \$15 a year on every steer for every year of his life. Pigs, sheep, and goats should be encouraged. Eating of horse meat should also be encouraged, and as soon as possible provision should be made to bring 15,000 or 20,000 fine fat whales per year from Antarctica, where they have now and for decades been wasted. Fortunately the experience of many nations shows that we can get along nicely with half our meat consumption if we have to.

II. *Food Conservation*.—Real food conservation is rationing. The other methods are small imitations. There has been a splendid educational campaign conducted urging us to spare the wheat, the meat, the fats, the sugar. To it I have willingly and gladly given many days of hard labor without pay. The campaign was a necessity, but I do not believe that so long as conserving remained on a voluntary basis, it can be shown to have been accompanied by any net saving of food. The intelligent, who because of that fact are nearly always patriotic, have stinted themselves. The great majority, who are not intelligent, have, because of high war wages, been able to indulge themselves. Undoubtedly if the facts were all in hand, we should see the same thing here as was found in England where a similar campaign and similar rise in wages was accompanied by actual increase in consumption of staple foods in the early period of the war. The campaign for voluntary rationing had its

real results in the education of the people of a democracy so that they would stand for the necessities of compulsory rationing when it came. It has now come, and it will go sometime after the end of the war, probably not before.

The actual food saving results for the first months, are, I fear, too nearly indicated by the action of a certain railroad which in April of this year on its dining car bill of fare flamboyantly advertised itself as coöperating with the United States Food Administration, announced that luncheon was a wheatless meal, and then a few lines below offered for luncheon the following:

- Rye bread and butter, 10 cents.
- Graham bread and butter, 10 cents.
- Boston brown bread, 15 cents.
- Dry or buttered toast, rye or graham, 15 cents.
- Virginia corn muffins, 10 cents.
- Mashed potatoes, 20 cents.

It refused to sell to any person a second order of Virginia corn muffins, and meanwhile charged 20 cents for a portion of mashed potatoes, when it is well known that the potato is the most important substitute for wheat and its near equals rye and barley. Furthermore, potatoes were at that moment a drug on the market, as the Food Administration had announced. If that railroad had been scientifically trying to help the Food Administration save wheat rather than indulging in some pious self-advertising, it would have sold mashed potatoes for 5 cents or at most 10 cents, and corn bread for 10 cents, allowing a repeat order, and charged 20 cents or 25 cents for wheat or rye bread, thereby automatically reducing the amount sold to a fraction of actual sales. Similar examples could be adduced indefinitely.

It has also been a great misfortune that the people have been unable to secure adequate quantities of substitute cereals at reasonable prices. A week ago to-day corn flour was quoted to me, four blocks from here, at 10 cents a pound, and wheat flour at 8 cents a pound. This indicates a deplorable condition in a country short of wheat and actually producing more than three times as much corn as wheat, and with a government that has begun to substitute statute law for the law of supply and demand.

III. Increasing Production of Bread Stuff and Bread Substitutes.—In the increasing of food production, the first year of the democracy at war and apparently even the second year promise to demonstrate democracy's weak point rather than its strong point. If anything is plain it is that we need an increase of food supplies, particularly bread. Yet that part of the democracy that can make itself most felt in newspapers, in elections, in congressional lobbies, is the city consumer, and one of the first acts of government with regard to the bread supply was to interfere with the law of supply and demand by guaranteeing increased home consumption and reduced home production. Despite innumerable reports that maximum price-fixing had been unsatisfactory in Europe, we tried it. As one of the first big steps in the United States we reduced the maximum price of wheat at a time when more wheat was needed. We also fixed a minimum price for the 1918 crop lower by a dollar than the price prevailing in the spring of 1917. The American farmer quietly but effectively made his answer. The government, through the Department of Agriculture, called for planting of 47,337,000 acres of winter wheat, and it got 11 per cent. less than this, or 42,170,000, almost exactly the amount sown in 1914.

Probably the worst part of this wheat price fixing is that it resulted in a destructive price ratio. The high prices of meat pushed the price of corn to such a figure that in many parts of the country it was cheaper to feed the pigs on wheat and rye than on corn, and you may depend upon it many of these four-footed brethren got the breadstuff. In some part of New York state wheat was 40 to 50 cents a bushel cheaper than corn. The production of such a condition by legislation as our Congress brought about, is not to be called food conservation. It is food destruction. As an outraged citizen I protest against legislation that makes me eat corn and makes the pig eat wheat. If I were a pro-German I would secretly applaud it.

What of the future? What steps has our government taken to guarantee an abundant supply of bread and bread substitutes? We are sitting with undue serenity behind the hope of a "normal average production." To quote the exact words of a spokesman of the federal government, "What the world needs from the United States in order to get through comfortably next year is 850,000,000

bushels of wheat. An acreage sufficient to produce even more than this crop, *if we have a normal average production*, has been and is being planted." This I assert is a positive menace. While I am not conversant with the plans of the German high command, I do not for a moment believe they have gone into this war leaving any vital point so exposed as to be dependent upon "a normal average production," if there is any way of avoiding it. We have abundant ways of giving further guarantees of bread substitutes, and we have not done so.

In engineering there is a practice of giving a wide margin of safety in building. A structure is made five or ten times as strong as the normal average load it is to carry. The peril that lies in this dependence upon a normal average production of wheat is shown by an examination of the irregularities of production in our regions of surplus. More than any other important crop regions in the United States our regions of wheat surplus are bounded by the perilous bounds of drought or frost. The western limit of the wheat border in Kansas is a drought line. The same is true in Nebraska, in South Dakota, in North Dakota. The same thing is true along the whole wide sweep of the southern edge of the West Canada wheat country, while its northern edge is limited by the uncertainties of cold waves and of frost. These unpredictable perils explain how Canada has been able to produce in 1914, 161 million bushels, in 1915, 376 million bushels, and in 1916, 220 million bushels—a fluctuation of more than 100 per cent. We have shown ourselves capable of fluctuations within twelve months from 1,025 million bushels in 1915, to 639 million bushels in 1916, and we were unable to raise the amount substantially in 1917 (651 million bushels). Except as a last refuge of the hard pressed we have no right to depend upon "normal average production" when Minnesota has shown herself able to vary her annual yield per acre from 17.0 to 7.4 bushels; North Dakota from 18.2 to 5.5; South Dakota from 17.1 to 6.8, all within the short gap of the same twelve months.

In the same limit of time Kansas has jumped within recent years from 10.7 to 20.5 bushels per acre. In one season Nebraska has plowed up 75 per cent. of her winter wheat because it was not worth keeping.

How can we guarantee the bread supply? There is of course always corn, which we do not like, and which we have never yet eaten very heavily. The real substitute established in our kitchen habits is the potato, and it is running straight toward ruin, if we depend only upon normal average production. The potato is the real substitute for bread in the American dietary. Properly dried it can be quickly made into much more of a substitute, as has long been the case in Germany. Professor Laughlin states in his recent book on war credit that in the food of the United States the potato is half as important as wheat and rye combined. In France it is an equal of both grains, while in Germany the potato is three to four times as important as these two bread stuffs. Germany has a real potato industry on an industrial basis. Ours is based on a gamble. A bulletin of the United States Department of Agriculture shows that the German potato supply is guaranteed at an amount far above needs for human food because of industrial uses such as alcohol, starch, stock food. These things have a fairly constant price, so the Germans have all the potatoes they want at a price which has fluctuated only 27 cents in a period of five years. Chicago meanwhile had a price fluctuation of \$1.34 per bushel. It is on the potato that Germany has thus far won her campaigns. Without it she would have perished any year. Our potato is a peril because it is a gamble. We have not developed a stable outlet for a surplus crop such as is afforded by the German starch, alcohol, flour, and forage products. Accordingly if we have a slight surplus they are thrown away, the market is glutted, as at the present moment, and the farmer is discouraged. The next year (as at the present moment) he plants a light crop and that potato season ends in shortage with high prices to stimulate the farmer to plant a large crop, and so on. The cycle has run with little variation for thirty years. Last year we had an excellent demonstration of the scanty end of it. This year even in our flour shortage we have an excellent demonstration of the glut end of it. Next year, unless there is a failure in all the signs of the past, aggravated by the conditions of the war, we are sailing straight into a potato shortage and also the possibility of a flour shortage. And the government is doing nothing about the potato question.

For a year we have needed a potato high minimum guaranteed

price just as we have for wheat, for exactly the same reason, so that we might shift the energies of our farmers from producing steer food to producing man food. It would take a very small shift, for our corn acreage in 1916 was 106 million acres, our wheat 53 million acres, and our potato area was 3.5 million acres—an insignificant proportion, perhaps 3 or 4 per cent. of our possible potato land, but enough under ordinary conditions to glut the market about every other year. Next spring it should be oversupplied again, and the government should guarantee it in advance and be prepared to conserve the potatoes by drying them.

The labor supply is a very important part of food production. Washington reports that 100,000 men per month are now going into war industries. The draft is taking them faster than that. Munitions and luxuries can both pay more than the farmer can. This is perilous business. With increased food demands and a government that is tinkering with the law of supply and demand, food shortage may catch us before we know it. The government should make some application of prophecy to the nation's needs and tendencies, and fill the most important needs before it is too late. Food disaster is a real disaster.

The government that rules us in the near future, will be a government well informed, and having the courage of its convictions. The last point will have much to do with deciding what language it speaks. Let us hope that the U. S. government of 1917, with its frittering of human energy, is gone. Last spring when Congress was discussing selective draft, college faculties urged students to leave their classes and go to the farm. Through my own personal office I cleared 418 University of Pennsylvania students for the farm, within five weeks after the declaration of war. This winter I have had the humiliation of seeing the food consumed by the makers of chewing gum, high-heeled shoes, limousines, and other products which thus are made to rank as of more importance than education.

The government is now formally asking, through the Department of Labor, for boys to leave school and go to farm work. It is an excellent principle, the selective draft idea applied to human time. Drop your books and take up the hoe. But what about the high-

heeled shoe, the limousine, and the gum—should they outrank both education and food? It would seem that at the present moment they do, for officially the government has called for the college student and not for the gum maker.

We have an extensive reserve of skilled agricultural labor, the many, many thousands of farmers' sons and farm hands who have gone forth from the farm and who will go back, temporarily at least, if the pay is good enough.

Labor cannot be drafted in the United States as easily as a soldier can be drafted. It can be inspired some, and for a safe dependence it can be paid. That is the practice in producing munitions and clothes. Food production is no exception.

In conclusion and summary, the proper utilization of our food resources during this war requires at the hand of government:

1. Price regulation to stop undue profiteering.
2. Price guaranteeing of bread and bread substitutes at such figures and such relative figures as to assure an abundant supply of the same at the expense of beef and other meat if necessary, but not at the expense of dairy products.
3. Material aid (other than talk) in the manufacture and distribution at reasonable prices of wheat substitutes if it is necessary for the people to use them.
4. Creation of new labor supply for the farm, by
 - a. Young men under draft age,
 - b. Women,
 - c. Workers drawn from less vital industries.
5. Deportation of all idlers, whether they use an old tomato can or 12 cylinders.
6. The building up as soon as possible of a war pantry of surplus breadstuffs of at least 200,000 bushels.
7. Development of local supplies wherever conditions are favorable. Thus war gardens, canning clubs, drying clubs, curb markets, local storages, etc., will do much to simplify the railroad burden.
8. Drastic simplification of distribution by eliminating waste motion of which we now have an almost unbelievable amount.

9. We need to have these things done as England manages her commerce, by a board of competent experts free to administer a law with sweeping powers. As it is now, it is done by elective congressmen not always above the suspicion of economic illiteracy and of representing a district rather than the United States. Congress is no more capable of setting the price of wheat by statute than it is of fixing a railroad rate. The Interstate Commerce Commission and the War Industries Board are good examples for Congress in the conduct of our food policy.

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